

SWBAT: come up with their own examples of resonance

Jan 4-7:20 AM

Concept Sheet

~ 7 rows when we're done...

We'll fill in two terms (rows) today.

Concept	Meaning	Sym-bol	Units	Picture
FREQUENCY	HOW MANY PER UNIT OF TIME $\text{FREQ} = \frac{\#}{\text{TIME}}$	$f$ $f = \frac{1}{T}$	hertz $\text{Hz} = \frac{1}{\text{sec}}$	
PERIOD	HOW MUCH TIME FOR ONE. PERIOD = $\frac{\text{TIME}}{\#}$	$T$ $T = \frac{1}{f}$	seconds sec.	
TRANSVERSE	WHEN THE MEDIUM VIBRATES ACROSS THE DIRECTION THE WAVE TRAVELS.			
LONGITUDINAL	WHEN THE MEDIUM VIBRATES ALONG THE DIRECTION THE WAVE TRAVELS.			
AMPLITUDE	HOW FAR FROM THE MIDDLE.	$A$	meters m	
WAVELENGTH	HOW FAR FOR ONE "BACK & FORTH"	$\lambda$	meters m	
WAVE SPEED	DISTANCE OF A WAVE TIME OF A WAVE	$v$	$\frac{\text{meters}}{\text{second}}$ m/s	

Feb 18-6:50 AM

# Welcome!!!

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SECA Physics  
Wednesday 29 April 2015

- \* Pick up:
  - worksheet
  - slip of paper (for later)



## Opening Question:

What does "natural frequency" have to do with a kid on a swing?

Centering

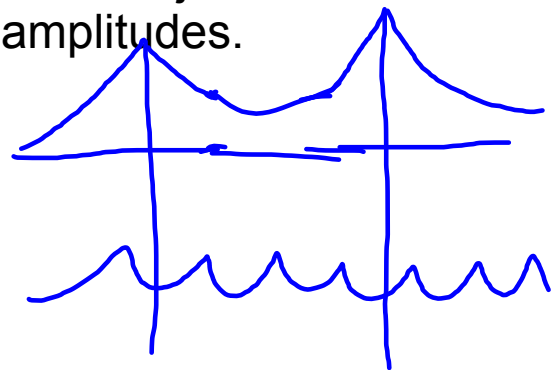
Sep 7-7:04 AM

Tuning forks...

Resonance: What is it???

When something matches an objects natural frequency causing large amplitudes.

"Well-timed forces create large waves"



## Demos:

- Kids learning to swing
- Tuning forks <http://www.youtube.com/watch?v=hiHOqMOJTH4>
- Jumping on bridge <http://www.youtube.com/watch?v=uWoiMMLivco>
- Air track <http://www.youtube.com/watch?v=wASkwB8DJpo>
- MB: Breaking glass [http://www.youtube.com/watch?v=PMg\\_nd-O688](http://www.youtube.com/watch?v=PMg_nd-O688)
- Tacoma Narrows Bridge <http://www.youtube.com/watch?v=j-zczJXSxw>

Apr 21-7:45 AM

# PED Survey

What do you think about the policy?

Anonymous

Apr 29-7:47 AM

## BRAINSTORM:

What are other examples of resonance?

"Well-timed forces cause large amplitude"

DRYER

BALLOON  
ON A STRING

SIZE OF WATER WAVES

DRIBBLE BALL

TEETER TOTTER

JUMP ROPE  
SWINGERS

MERRY GO AROUND

TRAMPOLINE

YO-YO

Apr 21-7:45 AM

### Daily 3 Questions

- \* Every day except test/project days
- \* 3 Questions on the topics of the day
- \* Main source of daily points
- \* I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

CP hmwk: What happens if you only pump your legs half the times? What if you do it twice per swing? Explain.

You can't get your points if you don't have your NAME!!!

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1) An object resonates when energy is added at its NATURAL frequency

2) What adds resonance energy to a kid on a swing?

- LEGS PUMPING  
OR  
PERSON PUSHING

3) Besides swinging, what is one other example of resonance?

BRIDGE, GLASS, AIR TRACK, . . . .

Apr 25-7:25 AM